



Third West Weekly Report  
Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbarnitz@utah.gov)'

02/08/2012 03:14 PM

Hide Details

From: "Shepherd, Michael" <Michael.Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)'"  
<cbarnitz@utah.gov>



#### 7 Attachments



Weekly Report 01-30 to 02-04-12.pdf Third West Weekly Log - 2011-05.pdf 228782-1.pdf 228963-1.pdf



229067-1.pdf 229078-1.pdf 229209-1.pdf

Joyce & Craig,

Attached are the reports for the week of January 30, 2012.

We had positive hits of chrysotile on Monday and Saturday last week, and a tremolite hit on Tuesday.

I read your email Joyce, I agree with your comments and we have already taken several measures to increase compliance to the Work Plan. I also have some ideas on the increase in chrysotile hits. I'll respond to your email with more details this week.

Please let me know if you have any questions.

Thanks,

Mike Shepherd

Project Manager  
Rocky Mountain Power - Major Projects  
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801.220.2797 Fax  
[michael.shepherd@pacificorp.com](mailto:michael.shepherd@pacificorp.com)

# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

DATE: 01/30/11

#### General

- NA Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
- NA Illness/Injury Report Form A
- NA Site-Specific Training Record Form C
- NA Hot Work Permit Form D
- NA Trench/Evacuation Permit Form E
- NA Combined Space Entry Permit Form F
- ☒ Exclusion zone operations are practiced as instructed.
- ☒ Decontamination unit is working properly.
- ☒ Workers are using decontamination unit as instructed.
- ☒ Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday

#### Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- ☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☒ Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
  - ☒ Field Sample Data Sheets (FSDS)
  - ☒ Logbook
  - ☒ On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☒ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- ☒ Electronically file sample reports into on-site database



## 3<sup>rd</sup> West Substation Site Project Safety Audit

Project: 3<sup>rd</sup> West Sub Station

Date: 01/30/12

Location: 3<sup>rd</sup> West, 1<sup>st</sup> South, SLC

Job Number: \_\_\_\_\_

Survey Conducted By: Justin Kargis

Title: \_\_\_\_\_

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2 fire resistance barrier.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
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1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

**Comments:**

Exclusion zone active and observed once earthwork began.

19 trucks washed out throughout the day.

Newman continued excavation for transformer pad and set shoring in hole for 46 kV vaults. They lined the walls outside the shoring and capped the ground level with clean fill. Waiting for fence panels to seal this area off for CVE civil crew.

IRH removed 3 of the old transformers from west section of the yard.

CVE line crew mounted another circuit breaker next to existing transformer pad.

# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

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NA Complete Employee Meeting Record Form B (where applicable)

NA Document required Respirator Training completion with Form H

NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.

NA Confirm return of waste material manifest documents for each load with site manager.

NA Complete all CSHASP Forms (for applicable activities planned for that day)

NA Illness/Injury Report Form A

NA Site-Specific Training Record Form C

NA Hot Work Permit Form D

NA Trench/Evacuation Permit Form E

NA Combined Space Entry Permit Form F

☒ Exclusion zone operations are practiced as instructed.

☒ Decontamination unit is working properly.

☒ Workers are using decontamination unit as instructed.

☒ Workers use personal protective equipment properly.

☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.

Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.

☒ Review sign-in/sign-out log throughout and at the end of the workday.

☒ Secure the site at the end of the workday

#### Sampling

NA Soil Confirmation sampling for any newly excavated areas

☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone

NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal

NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☒ Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
  - ☒ Field Sample Data Sheets (FSDS)
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- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
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Date: 01/31/12

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Job Number: \_\_\_\_\_

Survey Conducted By: Justin Kargis

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1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
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1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
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1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
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**Comments:**

Exclusion zone active once earthwork began.

4 trucks washed out before 10 am.

CVE civil crew started work on the floor for the 46kV vaults. Newman has spread clean fill and gravel on the ground and lined the walls of the hole with poly to create a cleaner area for work. However, work activities involve removing some of the plastic so that the workers are in close proximity to exposed native soil.

Newman continued with excavation and compaction for 2<sup>nd</sup> transformer pad. Several trucks of clean fill off loaded in the EZ.

R&R sampled dust in the battery room of the old control building. 3 samples were taken to the lab for 2 hour turnaround. While sampling, an oil spill was noticed around the structure for the get-away cable in the south west section of the yard.

IRH removed 2 more breakers from the west section of the yard and removed all of their equipment by days end.

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1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

**Comments:**

Exclusion zone active once earthwork began.

Bi-Weekly meeting covered mostly electrical, construction, and equipment items.

Met with Robert Hamilton from RMP and conducted site tour. Discussed a few areas that need to be covered up and addressed. He sent an email regarding these items to Scott Collard.

Met with Scott Collard and discussed some of the same items.

EZ was modified to allow for work on the 2<sup>nd</sup> transformer foundation. Newman continued breaking concrete structure/basement where old switchgear was housed.

# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

DATE: 02/02/11

#### General

- NA Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
  - NA Illness/Injury Report Form A
  - NA Site-Specific Training Record Form C
  - NA Hot Work Permit Form D
  - NA Trench/Evacuation Permit Form E
  - NA Combined Space Entry Permit Form F
  - ☒ Exclusion zone operations are practiced as instructed.
    - ☒ Decontamination unit is working properly.
    - ☒ Workers are using decontamination unit as instructed.
    - ☒ Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.  
Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday

#### Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- ☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☒ Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
  - ☒ Field Sample Data Sheets (FSDS)
  - ☒ Logbook
  - ☒ On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☒ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- ☒ Electronically file sample reports into on-site database



## 3<sup>rd</sup> West Substation Site Project Safety Audit

Project: 3<sup>rd</sup> West Sub Station

Date: 02/02/12

Location: 3<sup>rd</sup> West, 1<sup>st</sup> South, SLC

Job Number: \_\_\_\_\_

Survey Conducted By: Justin Kargis

Title: \_\_\_\_\_

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2 fire resistance barrier.			x	

<i>Standard</i>	<i>Title</i>	In Compliance	Out of Compliance	N/A	<i>Corrective Action Taken and Date</i>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

**Comments:**

Exclusion zone active once earthwork began.

CVE poured central section of switchgear floor and foundations for 46 kV vaults starting at 10 am.

Newman washed out 4 trucks loaded with concrete and native material.

R&R covered exposed cut bank areas with exposed native soil out side the exclusion zone. This was along the west side of the excavation of the 2<sup>nd</sup> transformer site. A high concentration of vermiculite was observed at the south end of this bank.

CVE personnel entered EZ around 2:30 without suiting up. They were in the west section of the yard that was previously considered part of the clean zone. This may require some clarification on new EZ boundaries.

# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

DATE: 02/03/11

#### General

- NA Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
  - NA Illness/Injury Report Form A
  - NA Site-Specific Training Record Form C
  - NA Hot Work Permit Form D
  - NA Trench/Evacuation Permit Form E
  - NA Combined Space Entry Permit Form F
  - ☒ Exclusion zone operations are practiced as instructed.
    - ☒ Decontamination unit is working properly.
    - ☒ Workers are using decontamination unit as instructed.
    - ☒ Workers use personal protective equipment properly.
  - ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.  
Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
  - ☒ Review sign-in/sign-out log throughout and at the end of the workday.
  - ☒ Secure the site at the end of the workday

#### Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- ☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☒ Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
  - ☒ Field Sample Data Sheets (FSDS)
  - ☒ Logbook
  - ☒ On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☒ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- ☒ Electronically file sample reports into on-site database



## 3<sup>rd</sup> West Substation Site Project Safety Audit

**Project:** 3<sup>rd</sup> West Sub Station

**Date:** 02/03/12

**Location:** 3<sup>rd</sup> West, 1<sup>st</sup> South, SLC

**Job Number:** \_\_\_\_\_

**Survey Conducted By:** Justin Kargis

**Title:** \_\_\_\_\_

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

**Comments:**

Exclusion zone active once earthwork began.

Newman had to raise the level of dirt for the 2<sup>nd</sup> switchgear. EZ had to be temporarily modified to accommodate for bringing in the roller and fill material. This involved Newman workers moving in and out of the active EZ through the fences while suited up between 8:30-12:30. Scott Collard from CVE was on site and observed this activity around 9:00-9:30.

Newman washed out one of the excavators but some native soil was still present in the tracks and wheels when it was loaded. R&R discussed this and encouraged Newman to more thoroughly wash equipment as it leaves the EZ.

CVE civil crew set forms and rebar for 2<sup>nd</sup> transformer pad.

CVE electricians worked on panels in the new control building.



## 3<sup>rd</sup> West Substation Site Project Safety Audit

**Project:** 3<sup>rd</sup> West Sub Station

**Date:** 02/04/12

**Location:** 3<sup>rd</sup> West, 1<sup>st</sup> South, SLC

**Job Number:** \_\_\_\_\_

**Survey Conducted By:** Justin Kargis

**Title:** \_\_\_\_\_

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2 fire resistance barrier.			x	

		In Compliance	Out of Compliance	N/A	
<i>Standard</i>	<i>Title</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Corrective Action Taken and Date</i>
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

**Comments:**

Exclusion zone active once earthwork began.

CVE civil crew poured foundation for 2<sup>nd</sup> transformer. Finished work around 15:00.

No exclusion zone work done.



PHOTO 1



PHOTO 2

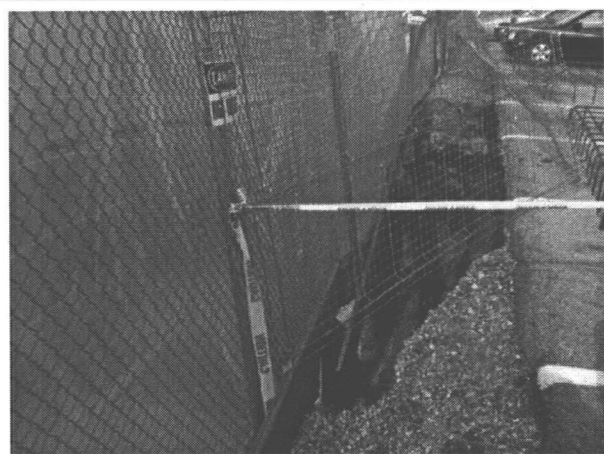


PHOTO 3



PHOTO 4

## **R & R**Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:

DCR

DRAWN BY:

JMK

DATE

01/30/12

FILE:

## SITE PHOTOGRAPHS



3<sup>rd</sup> West Substation  
"2011 Upgrade Project"  
Salt Lake City, Utah



PHOTO 1



PHOTO 2

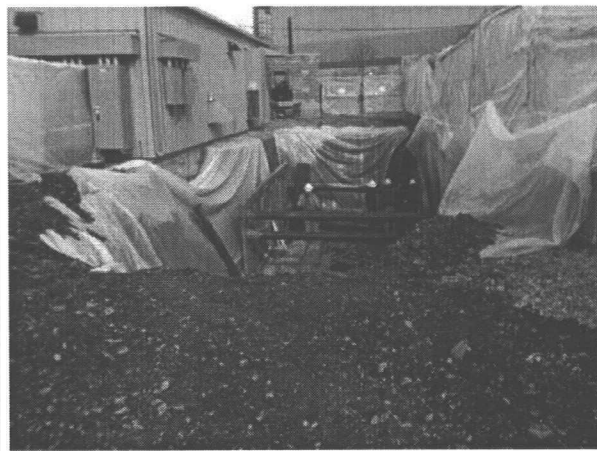


PHOTO 3



PHOTO 4

## **R & R**Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:  
DCR

DRAWN BY:  
JMK

DATE  
01/31/12

FILE:

## SITE PHOTOGRAPHS



3<sup>rd</sup> West Substation  
"2011 Upgrade Project"  
Salt Lake City, Utah



PHOTO 1



PHOTO 2



PHOTO 3

## **R & REnvironmental, Inc.**

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:

DCR

DRAWN BY:

JMK

DATE

02/01/12

FILE:

## **SITE PHOTOGRAPHS**



**3<sup>rd</sup> West Substation**  
**"2011 Upgrade Project"**  
**Salt Lake City, Utah**



PHOTO 1



PHOTO 2

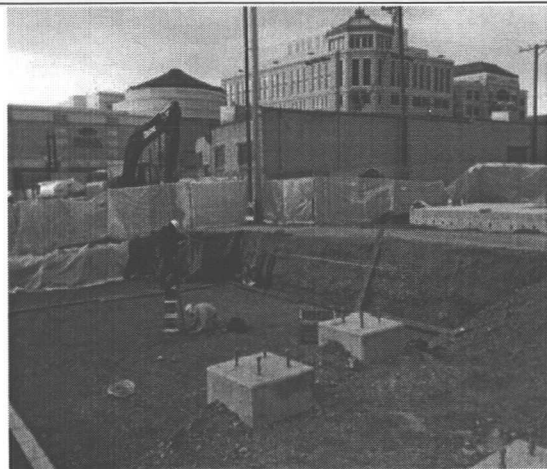


PHOTO 3

PHOTO 4

## **R & REnvironmental, Inc.**

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:  
DCR

DRAWN BY:  
JMK

DATE  
02/02/12

FILE:

## **SITE PHOTOGRAPHS**



**3<sup>rd</sup> West Substation  
"2011 Upgrade Project"  
Salt Lake City, Utah**



PHOTO 1



PHOTO 2



PHOTO 3

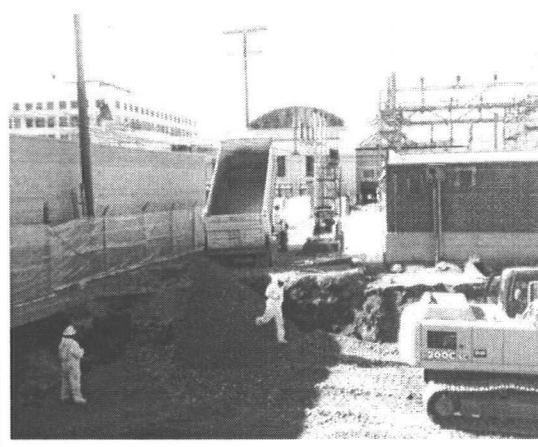


PHOTO 4

## **R & REnvironmental, Inc.**

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:  
DCR

DRAWN BY:  
JMK

DATE  
02/03/12

FILE:

## **SITE PHOTOGRAPHS**



**3<sup>rd</sup> West Substation**  
**"2011 Upgrade Project"**  
**Salt Lake City, Utah**

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Monday, January 30, 2012

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 16:15

Tot Hrs mns: 9:15

FCR Start Time: 6:50

FCR Stop Time: 17:13

Tot Hrs mns: 10:23

Use military time format 00:00

WEATHER CONDITIONS:

Overcast - 30 degrees in AM, 40 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. CVE line crew completed disconnecting all of the equipment in the old 46 kV yard and IRH removed the 46 kV breakers. They drilled and set the anchors for the two east 138 kV breakers and set the last CCVT in the A phase position on the Gadsby line (S/N 711335504, SAP # 388099). CVE fab crew is working on anchor bolts and embeds, filling in time until Newman has the 46 kV vault excavation ready for setting forms and rebar. Newman loaded out 19 trucks, for a total of 163. Newman placed gravel to grade in the bottom of the 46 kV vault excavation and positioned the trench box and relocated fence panels to place the vault excavation in the clean zone. Delivered packing slips and freight bills for HVB CBs to Mike Shepherd. CVE Line Crew = 5, CVE Fab Crew = 7, Newman = 8, Miller = 5, Geary = 4, R&R = 1, Wilding = 1.

IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Ken Barto 0650

Dispatcher logout, name and time: Barry Nielson 1713

DISCREPANCIES:

IMMEDIATE CORRECTIVE ACTION TAKEN:

11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/14 - Communications battery rack extends into the northeast doorway. Capital Electric indicates that they were told to proceed with the install by Barry Anderson.	Sent email and pictures to Roger F to confirm that this conflict is acceptable to RMP. Under evaluation by Comm Group
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

DELAYS OR LOST TIME ENCOUNTERED:

--

EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable wash-down structure, trachoe, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

OSHA Recordable Safety Incidents:

Reported by:

Time:

--	--	--



Russ Johnson  
Field Construction Representative

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE: Tuesday, January 31, 2012

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR: Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 16:55

Tot Hrs mns: 9:55

FCR Start Time: 6:35

FCR Stop Time: 17:15

Tot Hrs mns: 10:40

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 27 degrees in AM, 50 degrees in PM

**DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)**

R&R set up four monitors. Newman loaded out 4 trucks for a total of 167. Newman continued demo on the 4 kv switchgear foundation and vault, and continued excavation for the transformer area. They started backfilling and have installed approximately 1' of the 2' overexcavation. They also re-aligned the fence around the east side of the 46 kv vault area to keep people from parking in that area. The trench box was placed at grade and the exclusion zone fence was relocated to allow CVE fab crew access to the vault area. Newman delivered ABC material from the spoils stockpile for backfilling of the transformer and "E" foundation area. CVE fab crew started placing forms for the vault floors and worked on forms and rebar for the transformer. IRH completed removal of the 46 kv equipment from the west yard. CVE Fab Crew = 6, Newman = 6, Geary = 4, R&R = 1, Wilding = 1.

**IF WORKING IN ENERGIZED SUBSTATION:**

Dispatcher login, name and time: Ken Barto 0654

Dispatcher logout, name and time: Bany Nielson 1715

**DISCREPANCIES:**

**IMMEDIATE CORRECTIVE ACTION TAKEN:**

11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/14 - Communications battery rack extends into the northeast doorway. Capital Electric indicates that they were told to proceed with the install by Bany Andersor	Sent email and pictures to Roger F to confirm that this conflict is acceptable to RMP. Under evaluation by Comm Group
12/15 - Excavated to locate the 46 kv cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

**DELAYS OR LOST TIME ENCOUNTERED:**

--

**EQUIPMENT (working, delivered, idle):**

CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable wash-down structure, trachoe, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

**OSHA Recordable Safety Incidents:**

Reported by:

Time:




Russ Johnson  
Field Construction Representative

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Wednesday, February 1, 2011

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 16:40

Tot Hrs mns: 9:40

FCR Start Time: 6:45

FCR Stop Time: 17:15

Tot Hrs mns: 10:30

Use military time format 00:00

WEATHER CONDITIONS: Partly Cloudy - 28 degrees in AM, Cloudy and 38 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. Newman placed some temporary backfill along the south side of the switchgear to provide sufficient room for truck traffic to move through the EZ. The temporary backfill and fence relocation is necessary because of the excavation for the 2nd transformer pad. Newman placed backfill in the excavation for the west half of the new 138 kV yard. Newman continued doing demo work on the 4 kV switchgear vault and completed the backfill of the transformer pad area. They relocated the EZ fence so that the transformer area is in a clean zone. CVE fab crew is forming up the floors for the 46 kV vaults and prepping the embeds for the middle switchgear floor section to be poured on Thursday, 2/2 along with the vault floors. Delivered packing slips for relay panels and spare capacitors to Mike Shepherd. CVE Fab Crew = 7, Newman = 4, R&R = 1, Wilding = 1.

## IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Ken Barto 0645

Dispatcher logout, name and time: Jim Bowman 1655

## DISCREPANCIES:

## IMMEDIATE CORRECTIVE ACTION TAKEN:

11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/14 - Communications battery rack extends into the northeast doorway. Capital Electric indicates that they were told to proceed with the install by Barry Anderson.	Sent email and pictures to Roger F to confirm that this conflict is acceptable to RMP. Under evaluation by Comm Group.
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank.	Sent e-mail to Roger F.

## DELAYS OR LOST TIME ENCOUNTERED:


## EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable wash-down structure, trachoe, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

## OSHA Recordable Safety Incidents:

Reported by:

Time:




Russ Johnson  
Field Construction Representative

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Thursday, February 2, 2011

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 17:30

Tot Hrs mns: 10:30

FCR Start Time: 6:54

FCR Stop Time: 17:35

Tot Hrs mns: 10:41

Use military time format 00:00

WEATHER CONDITIONS: Snow and Rain - 33 degrees in AM, Partly Cloudy - 38 degrees in PM

DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors. Newman loaded out 4 trucks today for a total of 171. Newman completed relocating the fence around the EZ and we are calling the entire west side of the sub, including the old 46 kV yard, the EZ. We will need to make some adjustments when RMP comes in to remove the batteries. CVE fab crew poured the 46 kV vault floors and the middle floor section of the switchgear, approximately 30 cyds. Started forming up the transformer floor but subgrade is approximately 4" too low, so Newman will need to add 4" to the grade in the morning. CVE Fab Crew = 7, Newman = 5, Geary = 4, R&R = 1, Wilding = 1.

## IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Ken Barto 0654

Dispatcher logout, name and time: Jim Bowman 1735

## DISCREPANCIES:

## IMMEDIATE CORRECTIVE ACTION TAKEN:

11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.

Will excavate to determine dimensions.

12/14 - Communications battery rack extends into the northeast doorway. Capital Electric indicates that they were told to proceed with the install by Barry Andersor

Determined by RMP that a different style of battery rack will be purchased to allow clearance in the doorway

12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank

Sent e-mail to Roger F.

## DELAYS OR LOST TIME ENCOUNTERED:

## EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable wash-down structure, trachoe, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

## OSHA Recordable Safety Incidents:

Reported by:

Time:



Russ Johnson  
Field Construction Representative

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Friday, February 3, 2011

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 16:45

Tot Hrs mns: 9:45

FCR Start Time: 6:45

FCR Stop Time: 16:45

Tot Hrs mns: 10:00

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 27 degrees in AM, 45 degrees In PM

**DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)**

R&R set up four monitors. Newman added several inches to the subgrade in the transformer excavation, worked on the EZ fence and placed backfill in the south EZ area. CVE fab crew stripped the 46 kV vault floors and covered them with insulated blankets. They completed the rebar placement for the transformer floor in preparation for a 10:00 AM pour on Saturday. Wilding performed compaction tests on the south EZ area and identified an area in the center that is pumping moisture a bit. Newman quit vibrating and will evaluate the area on Monday. CVE electrical crew build panel framework and installed panels. CVE Fab Crew = 7, CVE Electrical Crew = 2, Newman = 6, R&R = 1, Wilding = 1.

**IF WORKING IN ENERGIZED SUBSTATION:**

Dispatcher login, name and time: Al Swinski 0645

Dispatcher logout, name and time: Jim Bowman 1645

**DISCREPANCIES:**

**IMMEDIATE CORRECTIVE ACTION TAKEN:**

11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.	Will excavate to determine dimensions.
12/14 - Communications battery rack extends into the northeast doorway. Capital Electric indicates that they were told to proceed with the install by Barry Andersor	Determined by RMP that a different style of battery rack will be purchased to allow clearance in the doorway
12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank	Sent e-mail to Roger F.

**DELAYS OR LOST TIME ENCOUNTERED:**

--

**EQUIPMENT (working, delivered, idle):**

CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable wash-down structure, trachoe, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

OSHA Recordable Safety Incidents:	Reported by:	Time:



Russ Johnson  
Field Construction Representative

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Saturday, February 4, 2012

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 7:00

Crew Stop Time: 15:40

Tot Hrs mns: 8:40

FCR Start Time: 7:00

FCR Stop Time: 15:40

Tot Hrs mns: 8:40

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 24 degrees in AM, 45 degrees in PM

## DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set up four monitors and left for the day. R&R will return in PM to remove monitors. Newman did not work today. CVE fab crew placed waterstop and built the framework for the oil containment sump. Concrete pour for the floor started at 11:00 and was complete by 1:00, 48 cyds. Both air and slump tests were passing. Crew completed finishing of concrete at 3:00 and after securing concrete blankets of new concrete work concluded at 3:40 PM. CVE Fab Crew = 6, R&R = 1, Wilding = 1.

## IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Eari McGlore 0700

Dispatcher logout, name and time: Eari McGlore 1540

## DISCREPANCIES:

## IMMEDIATE CORRECTIVE ACTION TAKEN:

11/30 - Identified an additional retaining wall that is below grade and does not show on the Demo Plan.

Will excavate to determine dimensions.

12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and didn't find them. Will try again. Actual depth will be much deeper than design of new bank

Sent e-mail to Roger F.

## DELAYS OR LOST TIME ENCOUNTERED:

## EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (2), forklift, 1 dumpster, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. Newman: portable wash-down structure, trachoe (3), loader, bobcat, mini-ex, power washer, water truck, compactor (2), backhoe.

## OSHA Recordable Safety Incidents:

Reported by:

Time:



Russ Johnson

Field Construction Representative



# **Reservoirs Environmental, Inc.**

February 1, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 228782-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub - RMP

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 228782-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr  
President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 228782-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub - RMP  
 Date Samples Received: January 31, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: February 1, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-013012 SW	EM 857996	0.0900	873	ND	0.0049	BAS	BAS
3W-013012 NW	EM 857997	0.0900	865	ND	0.0049	BAS	BAS
3W-013012 NE	EM 857998	0.0900	871	ND	0.0049	BAS	BAS
3W-013012 SE	EM 857999	0.0900	869	1	0.0049	0.0049	11.1

NA = Not Analyzed  
 ND = None Detected  
 BAS = Below Analytical Sensitivity  
 Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
 Filter Diameter = 25 mm  
 Effective Filter Area = 385 sq mm

Copy signed  
 by Elaine  
 Elserman  
 DN: CN = Elaine  
 Elserman, C =  
 US, O =  
 Reservoirs  
 Environmental,  
 Inc.  
 Date: 2012.02.01  
 12:41:41 -0700

DATA QA

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 228782-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub - RMP  
 Date Samples Received: January 31, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: February 1, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-013012 SW	EM 857996	ND	0	0	0	0	0	0	0
3W-013012 NW	EM 857997	ND	0	0	0	0	0	0	0
3W-013012 NE	EM 857998	ND	0	0	0	0	0	0	0
3W-013012 SE	EM 857999	Chrysotile	1	0	0	0	0	0	1

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 2-1-12  
Due Time: 845

**REILAB Reservoirs Environmental, Inc.**  
5801 Logan St. Denver, CO 80216 • Ph: 303-964-1886 • Fax: 303-477-4278 • Toll Free: 888-RESE-ENV  
Pager: 303-808-2088

RES 228782

Page 1 of 1

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: <u>RFE Environmental</u>	Company:	Contact: <u>Dave Roskelley</u>	Contact:
Address: <u>47 W 9000 S</u>	Address:	Phone:	Phone:
<u>Sandy Ut. 84070</u>		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Data Deliverable Email Address:	
Project Description/Location: <u>3<sup>rd</sup> West Sub - RMP</u>		<u>dave@reenviro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS												VALID MATRIX CODES		LAB NOTES:		
PLM / PCM / TEM	<u>RUSH</u> (Same Day) <u>X</u> PRIORITY (Next Day) <u>STANDARD</u> (Rush PCM = 2hr, TEM = 8hr.)	PLM - Short report, Long report, Point Count TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-veg, ISO-Indirect Preps PCM - 7400A, 7400B, OSHA DUST - Total, Respirable METALS - Analytes(s) RCRA 8, TCLP, Welding Fume, Metals Scan ORGANICS - METH Salmonella +/- E.coli O157:H7 +/- Listeria +/- Aerobic Plate Count +/- or Quantification E.coli +/- or Quantification Coliforms +/- or Quantification S.aureus +/- or Quantification Y & M +/- or Quantification Mold +/-, Identification, Quantification													Air = A	Bulk = B		
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm															Dust = D	Paint = P		
Metal(s) / Dust	<u>RUSH</u> 24 hr. <u>3-5 Day</u>														Soil = S	Wipe = W		
RCRA 8 / Metals & Welding Fume Scan / TCLP	<u>RUSH</u> 5 day <u>10 day</u>														Swab = SW	F = Food		
Organics	24 hr. <u>3 day</u> <u>5 Day</u>														Drinking Water = DW	Waste Water = WW		
MICROBIOLOGY LABORATORY HOURS: Weekdays: 8am - 6pm														O = Other				
E.coli O157:H7, Coliforms, S.aureus	24 hr. <u>2 Day</u> <u>3-6 Day</u>													**ASTM E1792 approved wipe media only**				
Salmonella, Listeria, E.coli, APC, Y & M	48 Hr. <u>3-5 Day</u>													Sample Volume (L) / Area	Matrix Code	Date Collected m/d/yyyy	Time Collected hr/mm a/p	EM Number (Laboratory Use Only)
Mold	<u>RUSH</u> 24 Hr <u>48 Hr</u> <u>3 Day</u> <u>5 Day</u>													873	A	1/30/12		857996
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**														865				57
Special Instructions:														871				98
Client sample ID number (Sample ID's must be unique)														869				99
1 3W-013012 SW																		
2 3W-013012 NW																		
3 3W-013012 NE																		
4 3W-013012 SE																		
5																		
6																		
7																		
8																		
9																		
10																		

Number of samples received: 4 (Additional samples shall be listed on attached long form.)  
NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	FedEx	Date/Time: <u>01/30/12</u>	Sample Condition:	On Ice	Sealed	Intact	
Laboratory Use Only			Temp. (F°)	Yes / No	Yes / No	Yes / No	
Received By: <u>[Signature]</u>	Date/Time: <u>1-31-12</u>	Carrier: <u>FedEx</u>					
Results:	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials

[Signature] # 7589 2358 5971  
7-2011\_version 1

## Attachment I

### Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

#### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

#### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

#### Sizing Conversion

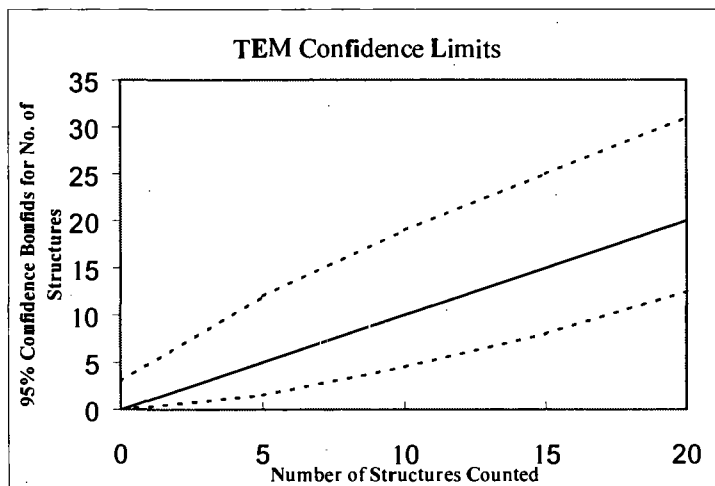
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### TEM Analysts

Jeanne S. Orr  
Nathan DelHierro  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <sup>(N)</sup> S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	873
Date received by lab	1/31/12
Lab Job Number:	278782
Lab Sample Number:	857996

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	2/1/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-4	ND												
	H4-4	ND					Pmp A 80% in bucket				Shake bucket			
	G4-4	ND					Pmp B 70% in bucket				5% debris			
	F4-4	ND												
	E4-4	ND												
B	K4-6	ND												
	H4-6	ND												
	G4-6	ND												
	F4-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

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Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <u>N</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	865
Date received by lab	1/31/12
Lab Job Number:	278782
Lab Sample Number:	857997

Analyzed by	JB
Analysis date	2/1/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L3-3	ND												
	K3-3	ND					Prop A & B				~80% intact			
	H3-3	ND									5-10% debris			
	G3-3	ND												
	F3-3	ND												
B	F2-6	ND												
	E2-6	ND												
	C2-6	ND												
	B3-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\QACCLab\TEM\Lab Dec\TEM Count Sheet rev. 1-11.xls

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Page 1 of \_\_\_\_\_

Laboratory name:	REI
Instrument	JEOL 100 CX <sup>(N)</sup> S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.055 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	871
Data received by lab	1/31/12
Lab Job Number:	278782
Lab Sample Number:	857998

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	2/1/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L4-1	ND												
	H4-1	MD					Prep A	80% intmt			5-10% debris			
	H4-1	ND					Prep C	70% intmt			5-10% debris			
	G4-1	ND												
	F4-1	MD												
JB 2/1/12	C3-1	ND												
	F3-1	MD												
	E3-1	ND												
	G2-4	MD												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\QAQC\Lab\TEM\Lab Doc\TEM Count Sheet rev.1-11.xls

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <sup>N</sup> S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	869
Date received by lab	1/31/12
Lab Job Number:	228782
Lab Sample Number:	857999

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	2/1/12
Method (D=Direct, I=Indirect, (A=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L4-4	ND												
	K4-4	ND												
	H4-4	ND												
	H3-1	ND												
	G3-1	ND												
B	E2-4	F		1	3	1	CD		✓		1			
	C2-4	ND												
	C4-4	ND												
	B4-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole,

C = Chrysotile

NAM = Non-asbestos material

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening

**REI LAB** ***Reservoirs Environmental, Inc.***

February 3, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 228963-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub - RMP

Eldon Romney  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

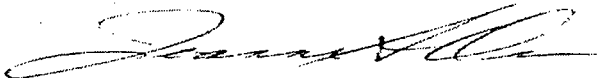
Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 228963-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,



Jeanne Spencer Orr  
President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0016

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 228963-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub - RMP  
 Date Samples Received: February 2, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: February 3, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-020112 SW	EM 859226	0.0800	966	ND	0.0050	BAS	BAS
3W-020112 NW	EM 859227	0.0800	965	ND	0.0050	BAS	BAS
3W-020112 NE	EM 859228	0.0800	965	ND	0.0050	BAS	BAS
3W-020112 SE	EM 859229	0.0800	966	ND	0.0050	BAS	BAS

NA = Not Analyzed  
 ND = None Detected  
 BAS = Below Analytical Sensitivity  
 Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
 Filter Diameter = 25 mm  
 Effective Filter Area = 385 sq mm

*ee*  
 Digitally signed by  
 Chae Etemen  
 DN: CN = Elaine  
 Etemen, C = US,  
 O = Reservoirs  
 Environmental,  
 Inc.  
 Date: 2012.02.03  
 10:28:35 -0700

DATA QA

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 228963-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub - RMP  
 Date Samples Received: February 2, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: February 3, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-020112 SW	EM 859226	ND	0	0	0	0	0	0	0
3W-020112 NW	EM 859227	ND	0	0	0	0	0	0	0
3W-020112 NE	EM 859228	ND	0	0	0	0	0	0	0
3W-020112 SE	EM 859229	ND	0	0	0	0	0	0	0

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 2-3-12  
Due Time: 8:50a

RES 228963

**REILAB** *Reservoirs Environmental, Inc.*

8801 Logan St. Denver, CO 80218 • Ph: 303 984-1988 • Fax 303-477-4276 • Toll Free: 866-REI-ENV

Pager: 303-609-2098

Page 1 of 1

**INVOICE TO: (IF DIFFERENT)**

**CONTACT INFORMATION:**

Company: <u>R&amp;R Environmental</u>	Company:	Contact: <u>Dave Rockaford</u>	Contact:
Address: <u>47 W 90th St #2</u>	Address:	Phone:	Phone:
<u>Sandy UT 84700</u>		Fax:	Fax:
		Cell/pager: <u>801-941-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Date Deliverable Email Address:	
Project Description/Location: <u>3rd West Sub - RMP</u>		<u>dave@reenviro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS												VALID MATRIX CODES		LAB NOTES:						
PLM / PCM (TEM) <u>   </u> RUSH (Same Day) <u>K</u> PRIORITY (Next Day) <u>   </u> STANDARD	(Rush PCM = 2hr, TEM = 6hr.)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-sec, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella +/-	E.coli O157:H7 +/-	Listeria +/-	Aerobic Plate Count +/- or Quantification	E.coli +/- or Quantification	Coliforms +/- or Quantification	S aureus +/- or Quantification	Y & M +/- or Quantification	Mold +/- Identification, Quantification	Air = A	Bulk = B	LAB NOTES:		
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																		Dust = D	Paint = P			
Metal(s) / Dust <u>   </u> RUSH <u>   </u> 24 hr. <u>   </u> 3-5 Day																		Soil = S	Wipe = W			
RCRA 8 / Metals & Welding <u>   </u> RUSH <u>   </u> 5 day <u>   </u> 10 day																		Swab = SW	F = Food			
Fume Scan / TCLP <u>   </u> RUSH <u>   </u> 5 day <u>   </u> 10 day																		Drinking Water = OW	Waste Water = WW			
Organics <u>   </u> 24 hr. <u>   </u> 3 day <u>   </u> 5 Day		O = Other																				
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 8pm		**ASTM E1782 approved wipe media only**																				
E.coli O157:H7, Coliforms, S aureus <u>   </u> 24 hr. <u>   </u> 2 Day <u>   </u> 3-5 Day		Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected h:mm a/p	EM Number (Laboratory Use Only)															
Salmonella, Listeria, E.coli, APC, Y & M <u>   </u> 48 Hr. <u>   </u> 3-5 Day																						
Mold <u>   </u> RUSH <u>   </u> 24 Hr <u>   </u> 48 Hr <u>   </u> 3 Day <u>   </u> 5 Day																						
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**																						
Special Instructions:																						
Client sample ID number (Sample ID's must be unique)																						
1	3W-020112 SW																	966	A	02/01/12		859726
2	3W-020112 MW																	965				27
3	3W-020112 NE																	965				28
4	3W-020112 SE																	966				29
5																						
6																						
7																						
8																						
9																						
10																						

Number of samples received: 4 (Additional samples shall be listed on attached long form)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>Justin Kagan</u>	Date/Time: <u>02/01/12</u>	Sample Condition:	On Ice	Sealed	Intact
Laboratory Use Only		Temp. (P)	Yes / No	Yes / No	Yes / No
Received By: <u>[Signature]</u>	Date/Time: <u>2-2-12 9:30a</u>	Carrier: <u>FedEx</u>			
Results:	Contact: <u>[Signature]</u>	Phone Email Fax	Date	Time	Initials
	Contact: <u>[Signature]</u>	Phone Email Fax	Date	Time	Initials

Handwritten signature  
7-2011\_version 1

## Attachment I

### Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

#### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

#### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

#### Sizing Conversion

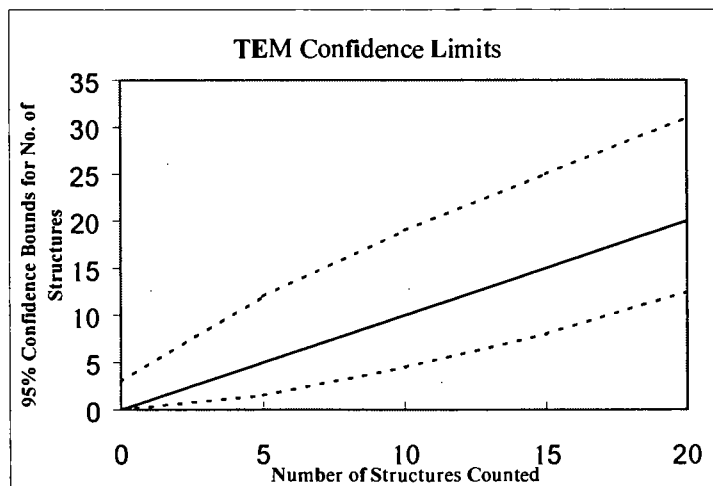
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### TEM Analysts

Jeanne S. Orr  
Nathan DelHierro  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX/N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	96.6
Date received by lab	2/2/12
Lab Job Number:	228613
Lab Sample Number:	559 226

Analyzed by	JB
Analysis date	2/3/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AV
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-1	ND												
	G3-1	ND					Pump A 80% in bucket				5% debris			
	F3-1	ND					Pump B 60% in bucket				5% debris			
	E3-1	ND												
B	L3-3	ND												
	K3-3	ND												
	H3-3	ND												
	H3-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\Worksheet In T: QAQC Lab QA Manual Sub-Documents TEM Bench sheet.doc

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX/N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
OA Type	

Client:	Ref
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	965
Date received by lab	2/2/12
Lab Job Number:	228693
Lab Sample Number:	559 227

Analyzed by	JB
Analysis date	2/3/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AV
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L3-3	ND												
	K3-3	ND												
	H3-3	ND												
	G3-3	ND												
	F3-3	ND												
B	H3-4	ND												
	G3-4	ND												
	F3-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX/N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 10 =	0.05S um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	965
Date received by lab	2/2/12
Lab Job Number:	228293
Lab Sample Number:	599228

Analyzed by	JB
Analysis date	2/3/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AV
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-1	ND												
	G3-1	ND												
	F3-1	ND												
	E3-1	ND												
B	H3-1	ND												
	G3-1	ND												
	F3-1	ND												
	E3-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

O = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX/N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	3S5
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	Ryk
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	96.6
Date received by lab	2/2/12
Lab Job Number:	228,693
Lab Sample Number:	539 229

Analyzed by	JB
Analysis date	2/3/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AT
Grkl storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-4	ND												
	G4-4	ND												
	F4-4	ND												
	E4-4	ND												
B	H3-3	ND												
	G3-3	ND												
	F3-3	ND												
	E3-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\Worksheet in T: QAQC Lab QA Manual Sub-Documents TEM Bench sheet.doc

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm}^2\text{)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



February 6, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 229067-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub-RMP

R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 229067-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanne Spencer Orr", is written over a horizontal line.

Jeanne Spencer Orr  
President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE 1. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 229067-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub-RMP  
 Date Samples Received: February 4, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 6 Hour  
 Date Samples Analyzed: February 4, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W420212 SW	EM 859717	0.0900	938	ND	0.0046	BAS	BAS
3W-020212 NW	EM 859718	0.1000	849	ND	0.0045	BAS	BAS
3W-020212 NE	EM 859719	0.0900	929	ND	0.0046	BAS	BAS
3W-020212 SE	EM 859720	0.0900	927	ND	0.0046	BAS	BAS

NA = Not Analyzed  
 ND = None Detected  
 BAS = Below Analytical Sensitivity  
 Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
 Filter Diameter = 25 mm  
 Effective Filter Area = 385 sq mm

Digitally signed  
 by Elsie  
 Elserman  
 DN: CN = Elsie  
 Elserman, C =  
 US, O =  
 Reservoirs  
 Environmental,  
 Inc.  
 Date: 2012.02.06  
 14:27:40 -0700

DATA QA

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 229067-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub-RMP  
 Date Samples Received: February 4, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 6 Hour  
 Date Samples Analyzed: February 4, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-020212 SW	EM 859717		0	0	0	0	0	0	0
3W-020212 NW	EM 859718		0	0	0	0	0	0	0
3W-020212 NE	EM 859719		0	0	0	0	0	0	0
3W-020212 SE	EM 859720		0	0	0	0	0	0	0

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 2/4  
Due Time: 7P



# Reservoirs Environmental, Inc.

5801 Uban St. Danver, CO 80216 • Ptc 303 964-1886 • Fax 303-477-4275 • Toll Free .888 RES-ENV

Pager: 303-509-2088

Job # \_\_\_\_\_  
Page 1 of \_\_\_\_\_

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

Company: <u>REIL Environmental</u>	Company:	Contact: <u>Dave Kestelley</u>	Contact:
Address: <u>417 W 9800S #2</u>	Address:	Phone:	Phone:
<u>Sandy Ut. 84070</u>		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Delta Deliverable Email Address:	
Project Description/Location: <u>3rd West Sub - RMP</u>		<u>dave@reenviro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS												VALID MATRIX CODES		LAB NOTES:
PLM / PCM / TEM	<u>RUSH</u> (Same Day) <u>X</u> PRIORITY (Next Day) <u>STANDARD</u> (Rush PCM = 2hr, TEM = 6hr.)	PLM - Short report, Long report, Point Count TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps PCM - 7400A, 7400B, OSHA DUST - Total, Respirable METALS - Analyte(s) RCRA 8, TCLP, Welding Fume, Metals Scan ORGANICS - METH Salmonella: +/- E.coli O157:H7: +/- Listeria: +/- Aerobic Plate Count: +/- or Quantification E.coli: +/- or Quantification Coliforms: +/- or Quantification S aureus: +/- or Quantification Y & M: +/- or Quantification Mold: +/-, Identification, Quantification SAMPLER'S INITIALS OR OTHER NOTES	Air = A	Bulk = B												
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm			Dust = D	Paint = P												
Metal(s) / Dust	<u>RUSH</u> 24 hr. 3-5 Day		Soil = S	Wipe = W												
RCRA 8 / Metals & Welding	<u>RUSH</u> 5 day 10 day		Swab = SW	F = Food												
Fume Scan / TCLP			Drinking Water = DW	Waste Water = WW												
Organics	24 hr. 3 day 5 Day		O = Other													
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 5pm			**ASTM E1792 approved wipo media only**													
E.coli O157:H7, Coliforms, S aureus	24 hr. 2 Day 3-5 Day		Sample Volume (L) / Area	Matrix Code	Date Collected mm/dd/yy	Time Collected mm/dd/yy	EM Number (Laboratory Use Only)									
Salmonella, Listeria, E.coli, APC, Y & M	48 Hr. 3-5 Day															
Mold	<u>RUSH</u> 24 Hr 48 Hr 3 Day 5 Day															
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**																
Special Instructions:																
Client sample ID number (Sample ID's must be unique)																
1	<u>3W-020212 SW</u>	X					938 A 2/2/12 359 717									
2	<u>3W-020212 NW</u>						849 18									
3	<u>3W-020212 NE</u>						929 19									
4	<u>3W-020212 SE</u>						927 20									
5																
6																
7																
8																
9																
10																

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>Justin Kruger</u>	Date/Time: <u>2/2/12</u>	Sample Condition:	On Ice	Sealed	Intact
Laboratory Use Only		Temp. (F°)	Yes / No	Yes / No	Yes / No
Received By: <u>JP Bear</u>	Date/Time: <u>2/4</u>	Carrier: <u>Fedex</u>			
Results:	Contact <u>Dave</u> Phone <u>303-509-2088</u> Email <u>dave@reenviro.com</u> Fax _____	Date <u>2/4</u> Time <u>4:30p</u> Initials <u>DK</u>	Contact _____	Phone <u>303-509-2088</u> Email <u>dave@reenviro.com</u> Fax _____	Date _____ Time _____ Initials _____
	Contact _____	Phone _____ Email _____ Fax _____	Date _____	Time _____	Initials _____

## Attachment I

### Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

#### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

#### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

#### Sizing Conversion

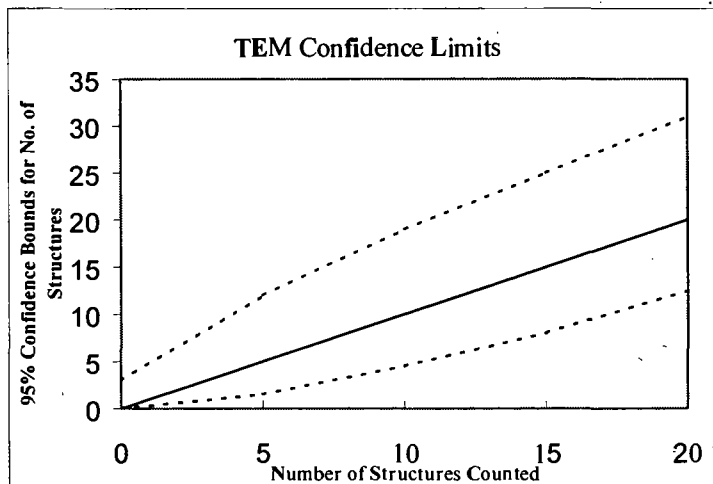
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### TEM Analysts

Jeanne S. Orr  
Nathan DelHierro  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N ⑤
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	538
Date received by lab	2/4/12
Lab Job Number:	229067
Lab Sample Number:	859717

Analyzed by	JL
Analysis date	2/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	A12
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-6	ND												
	G4-6	ND					Prep A 34, intact ~5% debris							
	F4-6	ND					Prep B ~A further 2/4/12							
	E4-6	ND												
	C4-6	ND												
B	K3-1	ND												
	H3-1	ND												
	G3-1	ND												
	F3-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	2010X 100X
Grid opening area (mm <sup>2</sup> )	0.01
Scale 1L =	0.28 um
Scale 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	849
Date received by lab	2/4/12
Lab Job Number:	229067
Lab Sample Number:	859718

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JLK
Analysis date	2/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	A12
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Oid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G3-3	ND												
	F3-3	ND					Prep A 90% wack inst 7 lab air							
	E3-3	ND					Prep B ~A sample 2/4/12							
	C3-3	ND												
	B3-3	ND												
B	F3-4	ND												
	E3-4	ND												
	C3-4	ND												
	G2-1	ND												
	F2-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	929
Date received by lab	2/4/12
Lab Job Number	229067
Lab Sample Number	859719

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JL
Analysis date	2/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AI
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-6	ND												
	C4-6	ND			Prep A 80% intact ~5% Libby									
	C4-6	ND			Prep B ~1A ~10% intact ~1/4/12									
	B4-6	ND												
	A4-6	ND												
B	F6-4	ND												
	E6-4	ND												
	C6-4	ND												
	B6-4	ND												

LA = Libby-type amphibole

CA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	927
Date received by lab	2/4/12
Lab Job Number:	229067
Lab Sample Number:	859720

Analyzed by	JK
Analysis date	2/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	A12
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-1	ND												
	G3-1	ND					Prep A 80% intact 5/3 lab prep							
	F3-1	ND					Prep B 2A				Sample 2/4/12			
	E3-1	ND												
	C3-1	ND												
B	L5-1	ND												
	K5-1	ND												
	H5-1	ND												
	G5-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{\text{IL}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



February 7, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 229078-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub - RMP

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 229078-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanne Spencer Orr", is written over a horizontal line.

Jeanne Spencer Orr  
President

P: 303-964-1986  
F: 303-477-4275

5801 Logan Street Suite 100 Denver, CO 80216

1-866-RESI-ENV  
[www.reilab.com](http://www.reilab.com)

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 229078-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub - RMP  
 Date Samples Received: February 6, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: February 7, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-020312 SW	EM 859768	0.0900	887	ND	0.0048	BAS	BAS
3W-020312 NW	EM 859769	0.0900	867	ND	0.0049	BAS	BAS
3W-020312 NE	EM 859770	0.0900	887	ND	0.0048	BAS	BAS
3W-020312 SE	EM 859771	0.0900	889	ND	0.0048	BAS	BAS

NA = Not Analyzed  
 ND = None Detected  
 BAS = Below Analytical Sensitivity  
 Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
 Filter Diameter = 25 mm  
 Effective Filter Area = 385 sq mm

Digitally signed  
 by Elaine  
 Elmer  
 DN: CN = Elaine  
 Elmer, C =  
 US, O =  
 Reservoirs  
 Environmental,  
 Inc.  
 Date: 2012.02.07  
 17:18:04 -0700

DATA QA

Due Date: 2/7/12  
 Due Time: 8:00a



# Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 984-1988 • Fax 303-477-4278 • Toll Free: 888 REB1-6N1V

Pages: 803-808-2086

Page 1 of 1

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

Company: <u>R&amp;E Environmental</u>	Company:	Contact: <u>Dave Roskelley</u>	Contact:
Address: <u>47 W 9000S #2</u>	Address:	Phone:	Phone:
<u>Sandy Ut. 84010</u>		Fax:	Fax:
		Cell/pager: <u>891 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Date Deliverable Email Address:	
Project Description/Location: <u>3<sup>rd</sup> West Sub - RAAP</u>		<u>dave@nemiro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS												VALID MATRIX CODES		LAB NOTES:	
PLM / PCM / TEM <u>TEM</u> RUSH (Same Day) <u>X</u> PRIORITY (Next Day) STANDARD (Rush PCM = 2hr, TEM = 6hr.)		PLM - Short report, Long report, Point Count	TEM - AMERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) RCRA 8, TCLP, Welding Fumes, Metals Scan	ORGANICS - METH Salmonella: +/- E. coli O157:H7: +/- Listeria: +/- Aerobic Plate Count: +/- or Quantification E. coli: +/- or Quantification Coliforms: +/- or Quantification Staphylococcus: +/- or Quantification Y & M: +/- or Quantification Mold: +/-, Identification, Quantification	MICROBIOLOGY	SAMPLES INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm ap	EM Number (Laboratory Use Only)		
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																	
Metal(s) / Dust <u>TEM</u> RUSH 24 hr. 3-5 Day																	
RCRA 8 / Metals & Welding Fume Scan / TCLP <u>TEM</u> RUSH 5 day 10 day																	
Organics <u>TEM</u> 24 hr. 3 day 5 Day																	
MICROBIOLOGY LABORATORY HOURS: Weekdays: 8am - 6pm																	
E. coli O157:H7, Coliforms, S. aureus <u>TEM</u> 24 hr. 2 Day 3-6 Day																	
Salmonella, Listeria, E. coli, APC, Y & M <u>TEM</u> 48 Hr. 3-5 Day																	
Mold <u>TEM</u> RUSH 24 Hr 48 Hr 3 Day 5 Day																	
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**																	
Special Instructions:																	
Client sample ID number (Sample ID's must be unique)																	
1	<u>3W-020312 SW</u>																
2	<u>3W-020312 NW</u>																
3	<u>3W-020312 NE</u>																
4	<u>3W-020312 SE</u>																
5																	
6																	
7																	
8																	
9																	
10																	

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	FedEx	Date/Time: <u>2/3/12</u>	Sample Condition: On Ice Sealed In tact
Laboratory Use Only			Temp. (F°) Yes / No Yes / No Yes / No
Received By: <u>[Signature]</u>	FedEx	Date/Time: <u>2/6/12 8:00a</u>	Carrier: <u>FedEx</u>
Results:	Contact <u>Dave</u> Phone Email Fax	Date <u>2/7/12</u> Time <u>8:30a</u> Initials <u>[Signature]</u>	Contact <u>Dave</u> Phone Email Fax
	Contact <u>Dave</u> Phone Email Fax	Date <u>2/7/12</u> Time <u>8:30a</u> Initials <u>[Signature]</u>	Contact <u>Dave</u> Phone Email Fax

7931 8347-7900

## Attachment I

Key to Count Sheets  
Count Sheets  
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

### Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron

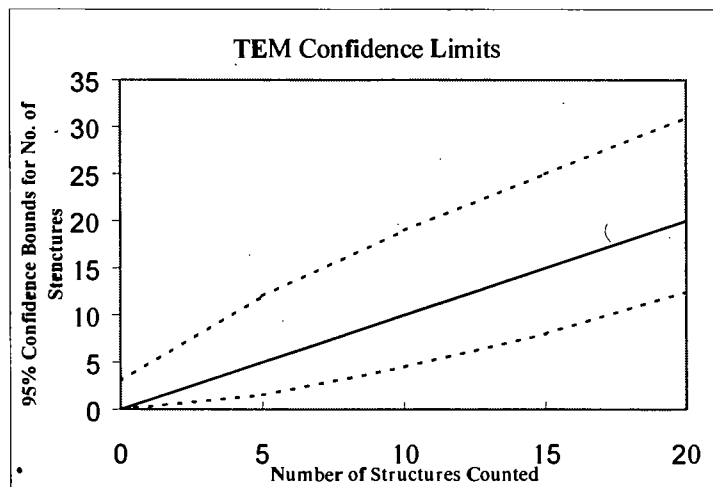
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

### TEM Analysts

Jeanne S. Orr  
Nathan DelHiero  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <del>ND</del> S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Tyoe	

Client:	REP
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	887
Date received by lab	2/6/12
Lab Job Number:	227078
Lab Sample Number:	8597108

Analyzed by	JTB
Analysis date	2/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	MdHth Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K5-1	ND												
	H5-1	ND			Purp A		90% in hnt				5% debris			
	G5-1	ND			Purp B		70% in hnt				5% debris			
	F5-1	ND												
	E5-1	ND												
B	H4-4	ND												
	G4-4	ND												
	F4-4	ND												
	E4-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <del>IV</del> S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	Rel
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	567
Date received by lab	2/6/12
Lab Job Number	221078
Lab Sample Number	859769

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volumes Applied to secondary filter (ml)	

Analyzed by	JTB
Analysis date	2/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AT
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H3-4	ND												
	G3-4	ND					Prep A	60% intact		5% debris				
	F3-4	ND					Prep B	50% intact		5% debris				
	E3-4	ND												
	C3-4	ND												
B	L3-3	ND												
	K3-3	ND												
	H3-3	ND												
	K4-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <del>10</del> S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	887
Date received by lab	2/6/12
Lab Job Number:	221078
Lab Sample Number	859770

Analyzed by	JB
Analysis date	2/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AT
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K5-1	ND												
	G5-1	ND					Pmp A	90% in hnt		5% debris				
	H5-1	ND					Pmp B	80% in hnt		5% debris				
	F5-1	ND												
	E5-1	ND												
B	H4-6	ND												
	G4-6	ND												
	F4-6	ND												
	E4-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <del>N</del> S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	RRR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	889
Date received by lab	2/6/12
Lab Job Number:	221078
Lab Sample Number:	859771

## F-Factor Calculation (Indirect Prepa Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis data	2/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H5-6	ND												
	G5-6	ND												
	F5-6	ND												
	E5-6	ND												
	L5-6	ND												
B	H4-1	ND												
	G4-1	ND												
	F4-1	ND												
	E4-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\Worksheet in T: DAQC Lab QA Manual Sub-Documents TEM Bench sheet.doc

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



# **Reservoirs Environmental, Inc.**

February 8, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 229209-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sup - RMP

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 229209-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr  
President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 229209-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sup - RMP  
 Date Samples Received: February 7, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: February 8, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-020412 W	EM 860822	0.0900	857	ND	0.0050	BAS	BAS
3W-020412 N	EM 860823	0.0900	855	1	0.0050	0.0050	11.1
3W-020412 E	EM 860824	0.0900	855	ND	0.0050	BAS	BAS
3W-020412 S	EM 860825	0.0900	853	ND	0.0050	BAS	BAS

NA = Not Analyzed  
 ND = None Detected  
 BAS = Below Analytical Sensitivity  
 Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
 Filter Diameter = 25 mm  
 Effective Filter Area = 385 sq mm

Digitally signed by  
 Elaine Eberman  
 DN: CN = Elaine  
 Eberman, C = U.S.,  
 O = Reservoirs  
 Environmental,  
 Inc., email =  
 Date: 2012.02.08  
 11:25:10 -0700

DATA QA

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 229209-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sup - RMP  
 Date Samples Received: February 7, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: February 8, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-020412 W	EM 860822	ND	0	0	0	0	0	0	0
3W-020412 N	EM 860823	Chrysotile	1	0	0	0	0	0	1
3W-020412 E	EM 860824	NO	0	0	0	0	0	0	0
3W-020412 S	EM 860825	ND	0	0	0	0	0	0	0

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 2-8-12  
Due Time: 11



# Reservoirs Environmental, Inc.

5881 Logan SL Over, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4276 • Toll Free: 866 RES-ENV

Pager: 303-509-2098

RES 229209

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

Company: <u>RE Environmental</u>	Company:	Contact: <u>Dave Rostelley</u>	Contact:
Address: <u>47 W 9000 S #2</u>	Address:	Phone:	Phone:
<u>Sandy Ut. 84020</u>		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Date Deliverable Email Address:	
Project Description/Location: <u>3rd West Sub - RMP</u>		<u>dave@renviro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS										VALID MATRIX CODES		LAB NOTES:						
PLM / PCM / TEM	<u>TEM</u> RUSH (Same Day) <input checked="" type="checkbox"/> PRIORITY (Next Day) <input type="checkbox"/> STANDARD	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vec, ISO-indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analytes(s)	PCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella +/-	E.coli O157:H7 +/-	Listeria +/-	Aerobic Plate Count +/- or Quantification	E.coli +/- or Quantification	Coliforms +/- or Quantification	S.aureus +/- or Quantification	Y & M +/- or Quantification	Mold +/-, Identification, Quantification	Air = A	Bulk = B	
																		Dust = D	Paint = P	
																		Soli = S	Wipe = W	
																		Swab = SW	F = Food	
																		Drinking Water = DW	Waste Water = WW	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																				
Metal(s) / Dust	<u>RUSH</u> 24 hr. 3-5 Day																			
RCRA S / Metals & Welding	<u>RUSH</u> 5 day 10 day																			
Fume Scan / TCLP																				
Organics	24 hr. 3 day 5 Day																			
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm																				
E.coli O157:H7, Coliforms, S.aureus	24 hr. 2 Day 3-5 Day																			
Salmonella, Listeria, E.coli, APC, Y & M	48 Hr. 3-5 Day																			
Mold	<u>RUSH</u> 24 Hr. 48 Hr. 3 Day 5 Day																			
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**																				
Special Instructions:																				
Client sample ID number (Sample ID's must be unique)																				
1	<u>3W-020412 W</u>		X															853 A	<u>02/04/12</u>	<u>840822</u>
2	<u>3W-020412 N</u>																	855		<u>23</u>
3	<u>3W-020412 E</u>																	855		<u>24</u>
4	<u>3W-020412 S</u>																	853		<u>25</u>
5																				
6																				
7																				
8																				
9																				
10																				

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u> <u>Fed Ex</u>	Date/Time: <u>02/06/12</u>	Sample Condition: <u>Temp. (F°)</u>	On Ice: <u>Yes / No</u>	Sealed: <u>Yes / No</u>	Intact: <u>Yes / No</u>	
Laboratory Use Only						
Received By: <u>[Signature]</u>	Date/Time: <u>2-7-12</u>	Carrier: <u>Fed Ex</u>				
Results:	Contact: <u>[Signature]</u> Phone: <u>[Signature]</u> Email: <u>[Signature]</u> Fax: <u>[Signature]</u>	Date: <u>2/8/12</u> Time: <u>9:30</u>	Initials: <u>[Signature]</u>	Contact: <u>[Signature]</u> Phone: <u>[Signature]</u> Email: <u>[Signature]</u> Fax: <u>[Signature]</u>	Date: <u>2/8/12</u> Time: <u>9:30</u>	Initials: <u>[Signature]</u>
	Contact: <u>[Signature]</u> Phone: <u>[Signature]</u> Email: <u>[Signature]</u> Fax: <u>[Signature]</u>	Date: <u>2/8/12</u> Time: <u>9:30</u>	Initials: <u>[Signature]</u>	Contact: <u>[Signature]</u> Phone: <u>[Signature]</u> Email: <u>[Signature]</u> Fax: <u>[Signature]</u>	Date: <u>2/8/12</u> Time: <u>9:30</u>	Initials: <u>[Signature]</u>

7480 2553 2685

## Attachment I

Key to Count Sheets  
Count Sheets  
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

### Sizing Conversion

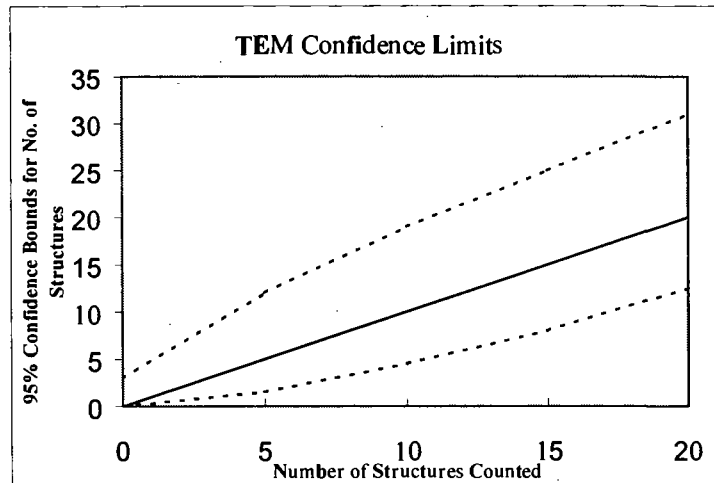
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

### TEM Analysts

Jeanne S. Orr  
Nathan DelHiero  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <del>N</del> S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.058 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	857
Date received by lab	2/7/12
Lab Job Number:	229209
Lab Sample Number:	820822

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	2/8/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G3-3	ND												
	F3-3	ND					Pup A	80% intact		1-3% debris				
	E3-3	ND					Pup B	90% intact		1-3% debris				
	E3-4	ND												
	C3-4	ND												
B	G2-6	ND												
	F2-6	ND												
	E2-6	ND												
	C2-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\Worksheet in T: QAQC Lab QA Manual Sub-Documents TEM Bench sheet.doc

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <del>A</del> S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client :	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	855
Date received by lab	2/7/12
Lab Job Number:	229209
Lab Sample Number:	860823

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	2/8/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G4-1	ND					Prep A	90% ambient			1-3% debris			
	F4-1	ND					Prep B	% ambient			% debris			
	E4-1	ND												
	E4-6	F		1	2	1	CD		✓		1			
	C4-6	ND												
B	H3-6	ND												
	G3-6	ND												
	F3-6	ND												
	E3-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

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Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <u>N</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	REI
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	855
Date received by lab	2/7/12
Lab Job Number:	229209
Lab Sample Number:	860824

Analyzed by	JB
Analysis date	2/8/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AI
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-6	ND					Rep A							
	E4-6	ND												
	C4-6	ND					Rep B							
	B4-6	ND												
	F5-6	ND												
B	H5-4	ND												
	G5-4	ND												
	F5-4	ND												
	E5-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\Worksheet in T: QAQC Lab QA Manual Sub-Documents TEM Bench sheet.doc

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <u>D</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	853
Date received by lab	2/7/12
Lab Job Number:	229209
Lab Sample Number:	860825

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	2/8/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	AI
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-3	ND												
	H4-3	ND					Prep A	80% intact		3% debris				
	G4-3	ND					Prep B	60% intact		3% debris				
	F4-3	ND												
	E4-3	ND												
B	G3-4	ND												
	F3-4	ND												
	E3-4	ND												
	C3-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening